A Workshop on the Management Needs to Minimize Vessel Collisions with Whales in the Hawaiian Islands Humpback Whale National Marine Sanctuary and other National Marine Sanctuaries

September 3 - 5, 2003 Wailea Marriott, an Outrigger Resort, Maui, Hawai'i

Workshop Agenda

DAY 1: Wednesday - September 3rd

7:30 am - Registration/Check-In

8:00 - Aloha Welcome

- Keynote: Workshop Objectives
  Capt. Reg White

8:30 - Panel 1 Hawaii Focused Information on Whale Distribution, Collisions, Mitigation Measures and Regulations: What is Happening in Hawaii Now?
- "Whale Distribution in Hawai'i and the Use of Forward Looking Sonar"
  Joseph R. Mobley, Ph.D.
- "Historical Evidence of Whale/Vessel Collisions in Hawaiian Waters (1975 - present)"
  Marc Lammers, Ph.D; Adam Pack, Ph.D*, and Lisa Davis
- "Social Groupings of Whales in Hawaii and Vulnerability to Ship Strikes"
  Louis Herman, Ph.D. and Elia Herman
- "Vulnerability of Humpback Whale Calves to Vessel Collisions"
  David Mattila
- "Current Regulations and Enforcement"
  John Reghi

10:00 -Break

10:30 - Panel 2 The Global Perspective: What can we Learn from Whale Research and Vessel/Whale Interaction in Other Areas
- "North Atlantic Right Whales (*Eubalaena glacialis*) Ignore Ships but Respond to Alerting Signal"
  Doug P. Nowacek*, Peter Tyack, Mark Johnson
- "Available Information on Collisions Between Vessels and Whales Worldwide"
  David Laist
- "Ship Strikes and Right Whales: Approaches to Reducing the Threat"
  Greg Silber
- "Acoustic Studies and Management of Vessel Speeds in Glacier Bay National Park"
  Christine Gabriele
- "Issues Related to Vessel Collisions with Whales in Southeastern Alaska"
  Jan Straley
- "International Law Considerations"
  Lindy S. Johnson

12:00 - Lunch

1:00 - Panel 3 Vessel Trends, Design Issues and Emerging Mitigation Techniques: What Aspects of Vessel Trends and Design Effect Potential Collisions and What Types of Mitigation Strategies are Emerging? What about unintentional encounters and incident reporting?
- "Where the Boats Are." Vessel Operations in Hawaii Waters"
  Capt. Terry Rice
- "Incat Vessel Design"
  Robert Clifford
- "Inter-Island Ferry Operations"
  Terry White
- "High Frequency Multibeam Sonar for Whale Shipstrike Avoidance: Target Strength Measurements"
  Whitlow W. L. Au, Ph.D.*, James Miller, and David Potter

Note: *Presenting

NATIONAL MARINE SANCTUARIES

Last Updated: 8/28/03

For More Information go to: http://hawaiihumpbackwhale.noaa.gov

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Workshop Agenda

DAY 1: Wednesday - September 3rd (Cont)

2:30 - Break

3:00 - Panel 4 Industry Perspectives and Considerations: Economic Importance, Industry Actions for Detection and Avoidance, Vessel Considerations, Unintentional Encounters, and Incident Reporting.

"Economic Importance of Vessel Operations in Hawaiian Waters"
Terry O'Hallaron

"Vessel Consideration and Contraints, i.e. in Regards to Cargo Ships, HSV, Small Commercial and Recreational Vessels"
Jack Laufer/Dale Hazelhurst, Capt. Jim Coon/Capt. Reg White

"Industry Actions/Detections and Avoidance"
Jack Laufer/Dale Hazelhurst, Capt. Jim Coon/Capt. Reg White

"Incident Reporting "
Jack Laufer/Dale Hazelhurst, Capt. Jim Coon/Capt. Reg White

4:30 - Wrap up and Overview Day 2

5:00 - Adjourn

6:00-8:00 Hosted reception @ HIHWNMS

DAY 2: Thursday - September 4th

8:00 am - Plenary Presentation: Report Back from Day 1
Bill Friedl

8:30 - Breakout Session 1: Identifying Strategies on Avoidance and Mitigation
1 - Large Ships
2 - Commercial Passenger and Support Vessels Operating on a Daily Basis
3 - Recreational Boats

10:00 - Break

10:15 - Plenary Session: Brief Report on Brainstorming Effort on Strategies: "Common Themes Across Groups".

10:45 - Breakout Session 1 (Cont)

12:30 - Lunch

1:30 - Breakout Session 2: Industry Considerations and Evaluating Strategies to Address Unintentional Encounters

3:00 - Break

3:30 - Facilitated Plenary Discussion of Breakout Sessions

5:00 - Workshop wrapup

5:30 - Adjourn

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DAY 3: Friday - September 5th

9:00 am - Plenary Presentations - Discuss and Assess the Need for NMS System-Wide Action

I. Overview of Past Related Initiaitves and Workshops

II. East Coast/West Coast Perspectives of Issue

10:30 - Break

10:45 - Plenary Discussion - National Issues

12:00 - Lunch

1:00 - Plenary Discussion - National Issues (Cont.)

3:00 - Break

3:15 - Next Steps

4:30 - Adjourn

NATIONAL MARINE SANCTUARIES

Last Updated: 8/28/03

For More Information go to: http://hawaiihumpbackwhale.noaa.gov

Appendix B

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September 3-5, 2003
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Presentation Summaries

Panel 1

Hawai'i Focused Information on Whale Distribution, Collisions, Mitigation Measures and Regulations: What is Happening in Hawai'i Now?
Objective: Provide information on distribution, collisions and mitigation strategies within Hawaiian waters. The information provided will assist the workshop participants in formulating specific recommendations on mitigation strategies, research needs, regulations, etc. on Day 2.

"Whale Distribution in Hawai'i and the Use of Radar"
Joseph R. Mobley, Ph.D.
University of Hawaii -West Oahu
Aerial surveys of marine mammals in Hawaiian waters have been conducted for the past ten years (1993-2003). Abundance estimates for humpback whales suggest that the wintering population is increasing. During "whale season" months (Jan-Apr) humpbacks are by far the most prevalent species in inshore waters and are thus particularly vulnerable to vessel interactions, including ship strikes. Recent studies show that radar can detect whales at the surface up to relatively large distances. More study of this new sensing technology is needed to determine its utility aboard ships as a means of avoiding collisions with whales."

Historical Evidence of Whale/Vessel Collisions in Hawaiian Waters (1975 – Present)
Marc O. Lammers, Adam A. Pack and Lisa Davis
The main Hawaiian Islands are the principal wintering grounds of North Pacific humpback whales. Although, their numbers are recovering, humpback whales continue to face a variety of anthropogenic threats. Arguably the most visible impacts are from collisions with vessels. This study examined the historical occurrence of whale/vessel collisions in Hawaii by documenting the available information on the number and location of collisions described in media reports and government records since 1975. In addition, the experiences and opinions of local mariners on the issue of whale/vessel collisions was analyzed based on responses to questionnaires disseminated to professional mariners across the State. Twenty-two whale/vessel collisions were publicly reported between 1975 and 2003. Maui had the highest incidence of collisions, while Kauai had the lowest. There was an increase in the number of reported collisions over the period examined. Only two incidents were reported between 1975 and 1984, six between 1985 and 1994, and thirteen between 1995 and 2003. Fifty-eight (58) of approximately 150 questionnaires that were distributed to experienced mariners in the Hawaiian Islands were returned via mail or email. Thirty-one respondents (53.4%) answered that they were aware of one or more collisions taking place between a vessel and a whale during the period between 1998 and 2002. The majority of respondents implicated medium sized boats ranging from 31 to 60 feet in length with top speeds between 10 and 30 knots. Large (61-100 ft) boats were also frequently involved, whereas small (< 31 ft) and very large (> 100 ft) vessels comprised only 16% of all reports combined. Almost half (24 respondents; 47.1%) estimated that less than one quarter of incidents get reported to the media or local authorities. The results presented indicate that whale/vessel collisions in Hawaiian waters are occurring with increased frequency and will likely continue to increase unless steps are taken to actively mitigate the problem.

"Social Groupings of Whales in Hawaiÿi and Vulnerability to Ship Strikes"
Louis Herman, Ph.D. And Elia Herman
Kewalo Basin Marine Mammal Lab
Vulnerability of humpback whales in Hawaii to ship strikes can be affected by migratory timing and length of residency of different classes of whales, by seasonal trends in density in different sub-habitats, by use of different sub-habitats by different population segments, and by behaviors of the whales, including size of group, surface activity, interval between dives, time spent at or near the surface and the age of the individual animal. Mothers in late lactation and immature males and females are among the earliest arrivals and the earliest departures from Hawaii waters. Mature males and mothers with calf arrive somewhat later on average and remain in many cases for extended periods. The density of whales is considerably greater overall in Maui waters than in Big Island waters. Density peaks early at the Big Island and tapers relatively quickly; Maui density peaks later, remains high for an extended period, and tapers less rapidly. Individual females appear to prefer Maui waters when with calf and Big Island waters when without. In general, calves and mothers are the most vulnerable segments of the population because they spend much time at or near the surface, often exhibiting logging behavior (remaining stationary at the surface), and because of their extended period of residency. Males are vulnerable because of their extended period of residency. Dyads (pairs), which often consist of immature animals, are vulnerable because of their low level of surface activity making them difficult to see. Singers are vulnerable when surfacing, as there will be little or no prior indication of their presence to surface observers. The density of ships in Maui adds to the increased threats in those waters. The proposed high-speed Superferry will be a substantial threat if it transits at high speed through the waters south and west of Molokai during whale season on its way to Kahului Harbor.

"What do "near misses" tell us about the individuals at greatest risk?"
David Matilla
Science and Rescue Coordinator, HIHWNMS
When examining the issue of vessel collisions with whales, the natural first step is to compile the numbers of reported incidents and look at the variables that seem to put whales and vessels at risk of colliding. This effort has produced some broad insights, but the low numbers of reported events prevent more detailed analysis. In this presentation I investigate the value of increasing the data set available for analysis by including the incidents of "near misses". A preliminary, anecdotal first look at which whale behaviors place them at highest risk, suggests that calves, surfacing alone, with resting mothers below, and animals on long dives are most likely at greatest risk in the Hawaiian winter season.

"Current Regulations and Enforcement"
Paul Newman
NOAA Office of Law Enforcement
From January to May of each year, our office will assign someone to work on Maui and that person will handle all humpback whale enforcement calls. We also respond to calls concerning spinner dolphins, monk seals and green sea turtles. During this past 2003 season there were 3 reports of whale strikes. During the 2002 season there were 2 reports of whales coming in contact with vessels. The Endangered Species Act is the strongest tool we have for prosecuting violators, otherwise we use the Marine Mammal Protection Act or the Hawaiian Islands Humpback Whale National Marine Sanctuaries Act. Interactions between vessels and

whales will be investigated where sufficient information and investigative resources are available. Incidents where negligence or willful intent is discovered WILL RESULT IN PROSECUTION. The boat operator is the one that is responsible for everyone's personal safety on board the vessel, just as they need to watch out for debris at all times, they should also be ready to react if a whale should suddenly surface. This way we protect our resource and also stop any possible unneeded injuries to the boat users or damage to the vessel. My experience in investigating whale strikes is that they are unintentional and mostly unavoidable. They usually happen at night when a whale will suddenly surface and be struck, but not always fatal. There have also been whales that have made contact with the vessel in order to get to the female, that is trying to use the vessel as a shield.
Final Recommendations- The best way to help prevent unwanted whale strikes is to slow down while traveling through inland waters and always be on the lookout for whales.

Panel 2

The Global Perspective: What can we Learn from Whale Research and Vessel/Whale Interaction In Other Areas
Objective: Gather information about whale behavior, vulnerability, and vessel interaction that can contribute to developing specific avoidance and mitigation measures in Hawaii. Discuss unintentional collisions and incident reporting methods elsewhere.

"North Atlantic Right Whales (Eubalaena glacialis) Ignore Ships but Respond to Alerting Signals"
Doug P. Nowacek, Peter Tyack, and Mark Johnson
Florida State University, Oceanography Dept.
We conducted tagging and controlled exposure experiments with right whales to determine their behavior/response in the presence of vessels to assist the design of ship strike mitigation measures. In response to right whale social sounds, the whales often showed transient responses characterized by heading changes and cessation of fluking. We were unable to detect clear responses to the silent or the vessel noise exposures, which is consistent with the lack of detectable response to actual approaching/passing vessels. In response to the alerting signal, however, 5 out of 6 whales showed a striking and identical response. They aborted their current dive, executed an uncharacteristically shallow-angle powered ascent, and remained at or near the surface until the exposure ended. Time near the surface was particularly dangerous with regard to ship strikes because the whales stayed just below the surface so were vulnerable but seldom visible. Not only were the ascents fully powered, but the whales also exhibited fluke stroke rates significantly above their individually characteristic rates, which has energetic implications. The 6th whale showed no response to the alert/alarm signal. Based on the whales' reactions, we conclude at this time that the alert/alarm signal we used actually increases rather than decreases the risk of collision.

"Available Information on Collisions Between Vessels and Whales Worldwide"
David Laist
Marine Mammal Commission
An assessment was undertaken to identify factors related to collisions between motorized vessels and whales. The assessment considered information from stranding records in the eastern United States, Italy, and France, and over 80 accounts describing collisions by crew aboard vessels who knew they hit a whale. Information on the number and speed of ships

over time was also related to trends in the occurrence of whales being hit by ships. The results indicate that (1) collisions between motorized vessels and whales first occurred in the late 1800s, were infrequent from then until the 1950s, and then increased between the 1950s and 1970s to levels approaching those seen today; (2) fin whales, right whales, humpback whales, and sperm whales are the species most frequently hit; (3) calves and juveniles are the age classes most frequently hit; (4) even vigilant operators of very maneuverable vessels rarely see the whales in time to avoid them; (5) all sizes and types of vessels from small outboards to aircraft carriers, hit whales, but most collisions causing serious or lethal injuries to whales are cause by vessels over 80 m in length; and (6) vessel speed is a factor in causing serious or lethal injuries to whales, with such injuries infrequent at speeds of 10 to 13 knots and far and away most common at speeds of 14 knots or higher.

Because vessel operators cannot reliably see and avoid hitting whales, using speeds of 13 knots or less is advisable as a means of minimizing the risk of seriously injuring or killing unseen whales when in areas where they are likely to be encountered. There are at least four converging lines of evidence to indicate that using speeds of 13 knots or less will significantly reduce the risk of serious or lethal injuries: (1) serious or lethal collisions involving motorized vessels apparently did not occur until ships were able to maintain sustained speeds of about 14 knots or faster in the 1880s; (2) early collision records involved vessels able to travel 14 knots or faster making them among the fastest ships of their day; (3) collision records remained infrequent until the 1950s when most large ocean going vessels routinely traveled at speeds of less than 14 knots, and (4) considering all available vessel-whale collision accounts (n=51) with information on both vessel speed at the time the whale was hit and the fate of the whale, nearly 90% of all serious and lethal injuries (32 of 36) involved vessels traveling 14 knots or faster, over 60% of the collisions causing minor or no effect (10 of 15) involved vessels traveling less than 14 knots.

Large Whale ship strike database

Major Findings:

1. Ship collisions appear to have begun in the late 1800s, occurred infrequently until 1950, and increased rapidly between the 1950s and 1970s.
2. Fin whales and right whales are the species most frequently hit, but collisions with humpback, gray and sperm whales can be common in some areas.
3. Juveniles and calves are more likely than adults to be hit.
4. All types of motorized vessels may hit and seriously injure whales, but most serious and lethal collisions involve larger vessels > 80 meters.
5. Even vigilant vessel operators rarely see whales in time to avoid them.
6. Serious or lethal injuries to whales appear to be rare at speeds below 10 knots, infrequent between 10-13 knots, and most common above 13 knots.

"Ship Strikes and Right Whales: Approaches to Reducing the Threat"

Greg Silber

NOAA, National Marine Fisheries Service

Ship strikes in right whales, or any large whale species, are a complex problem. Attempts to address the problem have biological, economic, navigational, sociological, and legal considerations. For right whales, ship strikes are significant factor in recovery of a highly depleted species. The draft strategy we have developed involves a number of different approaches, is multi-year in scope and weighs pragmatic, biological, and economic concerns. This workshop should consider actions that are effective in protecting the resource, but can be realistically accomplished within existing frameworks, and consider the roles of various stakeholders.

"Acoustic Studies and Management of Vessel Speeds in Glacier Bay National Park"
Christine Gabrielle
National Park Service

Glacier Bay National Park in southeastern Alaska is centered around a glacial fjord that is inhabited by 60-100 endangered humpback whales during the summer feeding season. The National Park Service regulates the number of vessels that can enter Glacier Bay, and restricts their courses and speeds to minimize disturbances and avoid collisions with whales. Vessels are prohibited from approaching within 1/4 mile of a whale, and from changing course or speed to pursue a whale. Vessels are subject to a speed limit of 20 knots in designated zones that is reduced to 10 knots when whale numbers are high. A new proposal, based on the findings of Laist et al (2001), would require large vessels to travel at 13 knots or less throughout the bay for the protection of whales. These regulations have several additional components, including biological monitoring to identify whale hotspots, law enforcement patrols to identify violators, and public outreach to ensure that boaters understand the regulations. The scientific rationale behind the vessel management rules has continued to be an important aspect of the program since the early 1980s. Since 2000, in collaboration with acousticians from the U.S. Navy, research has been conducted to investigate the underwater acoustic aspects of the vessel operating regulations. The research has verified the assumption that individual vessels produce less noise when traveling at slower speeds, and consequently that Glacier Bay 'whale waters' are quieter when a 10-knot speed limit is in place. Ambient noise statistics have also provided the first quantitative measures of vessel noise in the bay, indicating that 60% of hourly samples on average during the peak summer season contain vessel noise. The effects of vessel noise on humpback whales were modeled by applying techniques developed by Erbe (2002) to vessel noise, ambient noise, oceanography and bathymetry data from Glacier Bay, using two estimated audiograms of hearing thresholds for humpback whales (Clark and Ellison in press, Houser et al. 2001). The model suggested that disturbance, vocalization masking, and hearing damage could occur at various distances from vessels. The potential for hearing damage to occur with prolonged exposure to vessel noise may have implications for the whales' ability to avoid vessels. However, these findings are severely limited by the lack of understanding of large whale hearing thresholds. Separating vessel traffic lanes from prime whale habitats and reducing vessel speeds in whale-prone areas appear to be the most effective ways of minimizing disturbance, reducing received sound levels, and decreasing the likelihood of whale-vessel collisions. The need for increasing vessel management efforts in whale habitats worldwide will likely become more obvious as growing whale populations re-inhabit areas that are increasingly frequented by vessels.

Clark, C. W. And W. T. Ellison. 2003 in press. Potential use of low-frequency sounds by baleen whales for probing the environment: Evidence from models and empirical measurements. In: Thomas, J. Ed. Marine Mammal Sensory Systems. Pp.

Erbe, C. 2002. Underwater noise of whale-watching boats and potential effects on killer whales (Orcinus orca), based on an acoustic impact model. Marine Mammal Science. 18: 394-418.

Erbe, C. 2003. Assessment of Bioacoustic Impact of Ships on Humpback Whales in Glacier Bay, Alaska. Report to Glacier Bay National Park and Preserve. 38. Pp.

Houser, D. S., D. A. Helweg and P. W. B. Moore. 2001. A bandpass filter-bank model of auditory sensitivity in the humpback whale. Aquatic Mammals. 27: 82-91.

Laist, D. W., A. R. Knowlton, J. G. Mead, A. S. Collet and M. Podesta. 2001. Collisions between ships and whales. Marine Mammal Science 17: 35-75.

"Issues Related to Vessel Collisions with Whale in Southeastern Alaska"
Jan Straley
University of Alaska Southeast
The lecture will focus on historical background information concerning collisions, specifically collisions that result in whale scarring and mortalities. The lecture will also focus on the efforts that have been undertaken with local industries (cruise ship lines, local whale watching operators) to reduce or prevent collisions. Finally, the lecture will cover Alaska's upcoming issues regarding collisions, in particular, the introduction of fast ferries in Southern Alaska.

"International Law Considerations"
Lindy S. Johnson
Department of Commerce, NOAA General Counsel International Law
There are important international law considerations to be taken into account when determining possible actions to mitigate the risk of ship strikes of whales. International law provides some potential solutions to this issue as well as possible constraints on the action that can be taken. The most important treaty pertaining to the oceans is the 1982 United Nations Convention on the Law of the Sea (UNCLOS). This paper will set forth some of the most pertinent concepts in UNCLOS with regard to this issue. International law governing the shipping industry is also developed by a specialized agency of the United Nations, the International Maritime Organization (IMO). Any action taken to address ship strikes should take into account the treaties and other instruments developed under the auspices of IMO, as well as U.S. interests in that forum.

Panel 3

Vessel Trends, Design Issues and Emerging Mitigation Techniques: What Aspects of Vessel Trends and Design Effect Potential Collisions and What Type of Mitigation Strategies are Emerging
Objective: Review relevant information on vessel operations, vessel design characteristics and vessel management authorities. Identify specific trends that may be more or less problematic for collisions. Identify emerging techniques for mitigation.

"Where the Boats Are, Vessel Operations in Hawaii Waters"
Capt. Terry Rice
U.S. Coast Guard
The water surface area of the five Marine Protected Areas (MPA) of the Hawaiian Islands Humpback Whale National Marine Sanctuary is approximately 1,370 square miles. Two major shipping channels separate these MPA's: the Kauai Channel between Kauai & Oahu; and the Kaiwi Channel between Oahu & Molokai. Consequently, when addressing vessel traffic and whale traffic in the Main Hawaiian Islands it is important to recognize:
·The regulatory regime for sanctuary waters is different than for non-sanctuary waters.
·Vessel traffic by volume, density, type of vessel & speed differs in sanctuary and non-sanctuary waters; particularly in Channels.
·Although whales frequent both sanctuary & non-sanctuary waters during their six-month visit, they do not appear to recognize the relative advantages of staying within the sanctuary.
A variety of vessel types & sizes ranging from outrigger canoes to major commercial ships upwards of 1,000 feet long & drawing more than 45' of water transit Hawaiian waters. Propulsion systems include paddle, sail, and motor. Speeds range from "going nowhere in paradise" to potential speeds in excess of 40 knots for some vessels.

"Incat Vessel Design"
Robert Clifford
ncat Australia Pty Ltd
Operators (in whale prone areas) should avoid ordering or operating ships that rely on foils, exposed fins, rudders, propellers and other protrusions. That most ships from fishing craft to ocean liners still have all of the above protrusions, is the problem to be solved. The ships of the future would ideally have no underwater protrusions – like the Incat wave piercing catamaran. Incat is responsible for providing approximately 40% of the world's large high-speed vehicle ferries. High-speed ferries offer comparative advantages to ferry operators who currently demand reliable, fast, convenient and economically sound vessels.

"Inter-island Ferry Operations"
Terry White
Hawaii Superferry
Hawaii's Interisland Highway
Projecting service in 2-3 years
HSF in development since July 2001
5 elements of whale strategy work together
Policy
Routing
Lookout Technology

Dedicate whale lookout and
Technology Avoidance

"High Frequency 3-D Multibeam Sonar for Whale Shipstrike Avoidance: Target Strength Measurements"
Whitlow W. L. Au, Marine Mammal Research Program, Hawaii Institute of Marine Biology, University of Hawaii.
A multibeam sonar is one in which with a single ping range versus azimuth information can be obtained. A three-dimensional multibeam sonar is one in which with a single ping a three-dimensional observation of sonar returns can be obtain in a single ping. The FarSounder PH-3 is a 60 kHz three-dimensional multibeam sonar that has been designed for obstacle avoidance as well as whale avoidance. It can cover a swath of $\pm 60^{o}$ in the horizontal plane and about 60^{o} in the vertical plane, each beam having a width of 12^{o}. Such a sonar would be ideal for the detection of humpback whale. Detection ranges would be in the vicinity of about 300 m. Longer detection ranges could be achieved by using a higher source level than the standard 200 dB re 1 micropascal.

Panel 4

Industry Perspectives and Considerations: Economic Importance, Industry Actions for Detection and Avoidance, Vessel Considerations, Unintentional Encounters, and Incident Reporting. Panel members will engage in a moderated roundtable discussion highlighting the Industry Perspectives according to Vessel Class.
Objective: Review industry experiences and perspectives. Review industry efforts on avoidance and detection. Identify mitigation strategies from an industry perspective. Discuss issue of unintentional collisions and incident reporting.

"Importance of Hawaii's Vital Marine Industries and Vessel Operations"
Terry O'Halloran
Value and Contribution of Marine Industries

1. Island State
   America's only state completely surrounded by water
   Hawaii is critically dependent on marine industries
2. Marine Industries include:
   Maritime: Ocean transportation, incoming cargo and its related activities, shipbuilding and repair
   Ocean Tourism and Recreation: Tour vessels, scuba diving, kayaking, canoe racing, charter fishing, etc.
   Commercial Fishing
3. Economic - Estimated Annual Revenue
   Maritime: Excess of $2 Billion ($2,000,000,000)
   Ocean Tourism and Recreation: Excess of one half billion ($500,000,000)
   Commercial Fishing: Approximately $60 Million ($60,000,000)
4. Employment – Approximate number of jobs
   Maritime: 17,000
   Ocean Tourism & Recreation: 7,000
   Commercial Fishing: 1,000
5. Importance – Why are marine industries so important to Hawaii?
   Maritime: 80% of all required goods are imported, with 98% shipped via water
   Ocean Tourism & Recreation: Third most popular reason cited by visitors for coming to Hawaii and then after arrival its number one.
   Commercial Fishing: Cultural, known for quality, strategic tuna fishing grounds

"Industry Perspectives and Considerations"
Jack Laufer /Dale Hazlehurst, Matson Navigation Company
Capt. Jim Coon, Capt. Reg White, Terry O'Halloran
Panelists provided a summary of industry perspectives and considerations in regards to industry actions for detection and avoidance, vessel considerations and constraints, unintentional encounters, and incident reporting for large commercial vessels, high speed vessels (HSV), smaller commercial passenger and recreational vessels.

A. Detection
Sole means of detection visual by bridge team
Varying degrees of education and awareness/sensitivity of bridge team members with regard to Whales.

Daylight only, whales not lighted and make poor or non-existent radar targets.
Primary considerations detecting and avoiding other vessels and land, marine mammals low priority.

B. Avoidance - Maneuvering Issues
Large vessels cumbersome to maneuver
Whale movements difficult to predict, hence maneuvering may pose greater danger than holding steady course
Whales traveling in pods might make avoidance maneuvers risky, maneuvering for one may pose risk to others not yet identified but in vicinity.
Stopping impractical, risk to engine room personnel/machinery in panic stop, large distance covered before emergency stop and several minutes time.
Turning more practical under some circumstances, not practical for large objects close to bow, may place propeller closer to whale than holding course.

Detection and maneuvering for whale depends greatly on the awareness and sensitivity of the bridge team. No written contingency plan established for whale encounter, so it would be up to the individual watch officer to decide when action is called for. Once detected, probably best to hold course and monitor whale movements and let whales avoid ship. Maneuvering may be called for if it appears whale is floating on surface and not mobile (in other words sick or injured)

General Considerations for HSV's, Smaller Commercial and Recreational Vessels:
* HSV's don't maneuver very well or rapidly at reduced speeds.
* Spouts are hard to see in rough weather.
* Spouts are harder to see the lower you are to the sea.
* Passengers don't understand delay of their arrival times - they just ride the competition – airlines.
* Once there was a volunteer organization that kept the HSV's appraised of whale positions in the crowded areas. They could not cover the channels - now the population pressure has forced whales out into those channels. What do you do??
* Sailing vessels make very little noise to warn of their approach.

Industry Actions for Detection and Avoidance:
* Crew training in whale observation and whale behavior.
* Passenger briefing in whale detection and whale behavior.
* Communication with other vessels regarding whale sightings.
* Communication with Crew and Passengers to vessel captain of whale sightings.
* Training in appropriate avoidance maneuvers.

Vessel Considerations:
* Size of vessel
* Speed of vessel
* Sailing Vessels
* Fishing Vessels

Unintentional Encounters:

* Common during whale season
* Unavoidable
* Weather and Visability factors (Night and evening etc.)
* No right of “innocent passage”
* Avoidance maneuvers
* Training
* Increase in whale population
* Number of commercial small passenger vessels fixed for almost 20 years.
* Number of recreation vessels increasing

Incident Reporting:
* Current law allows for no exceptions to approach regulations
* Vessel operators face serious professional liability in the industry if associated with conviction of a violation
* Actual incidents very hard to quantify
* Vessel operators are hesitant to report incidents for fear of being investigated and cited for a violation.
* Need some “amnesty” for unintentional strike or possible strike incidents.
* Problem would be reduced with “innocent passage” language in regulations.
* Need to have baseline of incidents and track changes. Need good data.

Groups 1, 2, 3 - Actual Notes and Comments

Breakout Group #1: Large Vessel Issues

I. Recommendations

A. 1st Level Priority Issues

1. Vessel Types and Activities

Problem Statement
The risks and option for mitigation of whale strikes will vary as a function of vessel flag, speed, ship, activity and vestiture (public, private, and military).

Comments
#5 Specific activities of vessel are important: transiting, recreation, commercial, public
#7 Why do ships have to go 40 knots?
#15 Think about implications of the high speed vessel (define this) in a special way – studies to assess, evaluate, impact of military and commercial, etc.
#24 US flag vs. foreign flags vessels
#25 Consider implications of local large vessel operations vs. transiting vessel
#26 Large pleasure craft and. military vessels (because exempt, may be a coverage/information gap) e.g. RIMPAC, merchant vessels, NOAA research vessels.

Detailed Recommendations
a) Research and documentation is necessary
1. Historical details
2. Data on sightings/proximity per vessel type
b) Vessel speed
1. Critical issue
a). Within the Sanctuary
b). Within whale season
c) Education Process/Awareness Programs
1. Public ship operators
2. Private ship operators
3. Administration by Hawaii State Dept. of Transportation, industry and volunteers
d) Innocent Passage of Ships
1. Definitions are needed (unintentional encounters)
2. Transit ships from A to B
e) Unintentional Encounters via Various Ship Types
1. Merchant ships (container, roll on/roll off, bulkers)
2. Tug barges
3. Navy vessels/military
4. Passenger ships
f) Do We Have Problem?
1.Data collection will highlight
2.Research and education
3.Agency to review reporting data is required

2. Whales

Problem Statement

Define the vulnerabilities to collision (the SAC is separately addressing acoustic harassment) of relevant age/sex classes in different environments and seasonally (high traffic vs. low density and varying whale demographics) and how these threats change (i.e. magnitude) with increasing numbers of whales and vessels.

[Alternative proposed by Dr. L. Herman: Define the vulnerabilities (e.g., collision, disturbance, vessel noise) of different age/sex classes as it varies throughout the winter/spring season and in different sub-habitats (i.e., different islands and Pen guin Bank). Assess how these threats may change in magnitude with increasing numbers of whales and of vessels.]

Comments

#6 Define which category of whale (behavior class) that is most vulnerable

#21 Problem statement to reflect the fact that number of whales is increasing, as is the number of ships

#23 "Harassment" and collision as an interaction that's relevant

Detailed Recommendations

a) Research on demographics in different sub-habitats (Big Island, Maui County, Kaua'i, O'ahu and Penguin Bank) including relative incidence of most vulnerable of population (e.g. calves) to be monitored over time (if not annually) for changes as population increases.
    1. Vulnerability affected by:
        a. Migratory timing and length of residency;
        b. Seasonal trends in density across habitats;
        c. Use of different habitats by different population segments; and
        d. In general, calves and mothers most vulnerable due to behavior (logging) and long residency time. Males are also vulnerable because of long residency time.

b) Research on vessel density and type in each of the sub-habitats an indication of potential for collision or harassment (possible overlap with Chapter 3 Vessel Types and Activities).

c) Determination of acoustic environment and response of whales to vessels and vessel noise in each sub-habitat and age/sex class.

d) Necropsy of all dead whales (possible overlap with Chapter 5 Research Needs).

[Changes proposed by Dr. L. Herman:

a) Vulnerability is affected by migratory timing and length of residency, seasonal trends in density in different sub-habitats, use of different sub-habitats by different population segments, and by behaviors of the whales, including size of group, surface activity, interval between dives, time spent at or near the surface and the age of the individual animal. In general, calves and mothers are the most vulnerable because they spend much time at or near the surface, including logging at the surface, and because of their extended period of residency. Males are vulnerable because of their extended period of residency.

b) Therefore, research is needed to determine population demographics in different sub-habitats (Big Island, Maui county, Kauai, Oahu and Penguin Bank), including the relative incidence of the most vulnerable seg-

ments of the population, Seasonal changes in demographics should be assessed as well as changes over years.

c) Research is also needed on vessel density and vessel type in each of the sub-habitats as an indicant of the potential for collision or harassment (possible overlap with Chapter 3, Vessel types and activities).

d) Research is needed to determine the acoustic environment in each sub-habitat and the responses of whales of each age/sex class to vessels and vessel noise.

e) Necropsy should be carried out on all dead whales, including a search for blunt trauma as an indicator of collision (possible overlap with chapter 5, Research Needs).]

3. Research and Data Needs

Problem Statement

Develop better reporting policies and archiving strategies of whale and vessel interactions and collisions in next six months, in order to better assess the whale/vessel collision issue, produce a risk analysis and decide on use of technological resources to mitigate any problems.

Comments

#10 Assessing technical resources, development for many technical tools and information, we don't have agreement about value and applications regarding whale and vessel interactions

#11 We need more, better information

#13 Conduct some "risk analyses" of threat of collision, can lead to implementation improvement (such as Bay of Fundy), many possible areas that can be fruitful

#22 Better ways of reporting and centralizing database

Detailed Recommendations

a). Better reporting method including a centralized database

1. Detailed reports of collisions, date, type of strike, speed, activity and type of injury
2. Strandings and dead whales at sea need full necropsies with all the information integrated into database
3. Near misses
4. Method for honest, full, unbiased reporting
5. Strategy and protocol if whales are hit

b). Risk Assessment

1. Demographics and vulnerability (age, class, sex behavior)
2. GIS and distribution of whales/boats to determine hot spots and develop models

B. 2nd Level Priority Issues

1. Geography

Problem Statement

What are the boundaries of our areas of concern and are they manageable?

1) Sanctuary as it exists for regulatory support and enforcement.
2) Waters around main Hawaiian Islands 100 fathom isobaths; this is where the

whales are.

3) Waters of the territorial seas; whales transit this area.
During what seasons? Dec 15th to May 15th (*late Jan to early April)

Comments

#1 Geographic significance: Hawai'i is a different place regarding our issues, i.e. it is more significant at the individual whale level than at the population level

#4 Geographic implication
Sanctuary to Sanctuary
Some similarities and differences

#20 Deal with Sanctuary boundaries and implications

Detailed Recommendations

a). Ship strike reduction measures and assessment will depend on geographic area which include the areas listed in the problem statement but also should consider:

1) Range wide Humpback Habitat (migratory destinations)
2) All sanctuaries (e.g. Monterey, Olympic Coast, Channel islands and Stellwagen Banks) and other protected areas

2. Regulatory Issues/Management Action

Problem Statement
Develop a proactive management approach for addressing vessel and whale interactions that take into account existing laws, regulations and socio-economic impacts.
Regulatory agencies need to recognize that large vessels have limited options (if any) in avoiding collision with an "unanticipated" whale appearing immediately ahead. If I recall, our discussion included Realistic Enforcement within Practical Guidelines (sort of flip side of Prudent Mariner).

Comments

#14 Don't wait until "all the studies are done"

#16 Look closely at laws and regulations

#17 Build a matrix of issues and prioritize, study, plan, design, reactions, implement, monitor

#19 Consider impact to/on humans, too and strategies related to whale and vessel interactions

C. 3rd Level Priority Issues

1. Future Work

Problem Statement
What activities can be done in next 6 months by sanctuary management to identify future work to minimize whale/vessel collisions?

Comments

#2 We will not finish today, so we must articulate what work needs to follow the workshop

#3 Consider re: "prudent mariner" standard, best practices and use in strategies
#8 Deal with this. Is there a problem here already with large ships?

2. Resource Allocation

Problem Statement
In identifying and addressing the problem, decisions must be made by all interested entities (e.g. industry, sanctuary staff, researchers) with regard to resource allocation. This includes developing priorities and identifying funding needs.

Comments
#9 Is funding available for different solutions (technical solutions, attitude changes, new alternative practices)?

3. Education

Problem Statement
Develop outreach and other educational materials in next six months on whale density, distribution, behavior, and vulnerability, as well as current regulations and safe boating policies, in order to inform and educate large vessel operators about the whales and their risks from vessel traffic.
Most of the data collection/monitoring plan are really research needs. The major educational effort for this group seems to be making sure the professional mariners are aware that there is a potential problem and that the Sanctuary needs help in collecting reliable data on encounters.
The approach to the education issue for this group depends on how they answer the question, "is there a problem". There doesn't seem to be a significant problem now with this class of vessel, but there is potential for the problem to grow if the number of large vessels, speed of vessels, and/or military operational tempo increases in "whale waters".

Comments
#12 Education and other now-doable strategies should be done (low fruit hanging fruit strategy)
#18 Target education efforts to deliver improved results, especially for smaller vessels but also for merchant marine, too.

Breakout Group #2: Commercial Passenger Vessel Issues

I. Priority Recommendations

The group was asked to develop specific recommendations based on the discussions held in the morning. The full group was divided into three small sub-groups, each tasked with developing recommendations for one of the three discussion areas from the morning. In conjunction with their efforts a set of assumptions was drafted that reflected some common themes stated by the group. Those sssumptions are presented below. The Recommendations include both the small group work and then a ranking effort that the group 2 members conducted after presenting their recommendations to the entire conference plenary.

Assumptions:

- Target group definitions is passenger carrying vessels
- Commercial operators, public agencies and organizations doing a very good job in Hawaii managing whessels
- Opportunities to improve and enhance existing efforts and be proactive in preventing/addressing new issues

Recommendations:

The group was asked to further refine their recommendations to identify priority preference as a means of giving direction to the SAC Working Group as they prepared their recommendations to the SAC. The group established the following criteria to rank the recommendations:

#1= very important and can be implemented within 6 months,
#2= very important and would take longer than 6 months,
#3= important, but can wait until other issues are addressed

Each member was asked to rank each item as a #1, #2 or #3. Note that in some cases it was difficult for group members to understand the details of the items being ranked, due to lack of time for discussion among sub-groups. The results are as follows:

Overall Recommendation Not Ranked:

1. Communication (Overall ongoing activity to be implemented, not ranked)
    a. Continue building communication efforts and activities between operators and agencies and organizations
        ·Bring together often to share research and data
        ·Work together to collect data if possible and report back to industry
        ·Brainstorming sessions on issues
    b. Management: Communication mechanism between researchers and operators, low tech, observers

A. 1st Level Priority

1. Enhancing Existing Education Programs
    a. Workshops for local captains
        - Create incentives
        - Bring in researchers/behavior specialists
        - Go to harbor
        - Use pre-season meeting to bring researchers, enforcement, others
        - Local information sharing
    b. Share Strategies and Techniques for Driving Around Whales

2. Develop an Industry-based Code of Conduct for use in Hawaiian waters
    a. To be developed by OTC and shared w/ users
    b. Include concept of "Prudent Seamanship"
    c. Guidelines such as "no more than three boats per pod" or "30 minute max. with mother and calf"
    d. Work to complete Code by 2003/2004 season
    e. Look at speed factors

3. Review 100 yard Approach Rule:

(The intent here was to start the process within six months. However, it should be noted that some who participate in rulemaking recognized this as #2 priority in that if the agencies decided to consider any changes it would take longer than six months.)

a. Need to develop a better, more clear definition of "Approach", current language is vague—(see Alaska for approach language, again it should be noted that the language referred to here is as a reference and may serve as a guide so as not to reinvent the process.)
b. Consider issue of "intent to takes" into consideration efforts of operators to be good stewards
c. Look at language/idea of "Prudent Seamanship" in amending language

4. Reporting
   a. Clarify Definitions
      - Incidental contact
      - Collisions
      - Standard reporting needs/data
      - Near misses
   b. Increase reporting (without fear of penalty)
      - ID third party to report for data collection only
      - Survey forms, 800 number, conduct reporting issues at meetings, standardize reporting
      - More dialogue and communication between enforcement and operators
      - Look at "Amnesty" program

5. Speed (See Group 2 Appendix on Comments for more on this issue)
   a. Look at speed issues by vessel type
   b. Look at implementing the speed campaign "15 or less is best, 20 is plenty"
   c. Consider data on speed of 13 or less

6. Public Awareness/Outreach
   a. Recreational Boaters—during registration provide Code of Ethics/Conduct, must sign and get sticker
   b. Continue school programs
   c. Continue passenger awareness

7. Ongoing Research
   a. Continue aerial surveys link info to increasing densities and distribution

8. Predictability Model
   (#2 and #1: all agreed the issue was very important, the vote was nearly split primarily due to the timeframe to implement—operators would like to start now with existing data, and use process to ID other research needs to complete model. Research and management folks were generally of the opinion that the model would be of limited value without reliable data as input.)
   a. Need to define problem
   b. Address increasing population
   c. Demand for being on the water
   d. Data needs on strikes and injury
   e. Define and investigate near misses
   f. Dialog w/o penalty

g. Incorporate geographic expansion
h. Work on trust issues
i. Future strikes and that probability throughout coming years
j. Vessel tracking info overlayed on presence of animals
k. Clear definitions throughout
l. Identify consistent high density areas within known areas of distribution ("microhabitat") so these areas can be avoided by vessels. The highest volume of vessel traffic is also within the area of high density.
m. Need detailed information on vessel routes

B. 2nd Level Priority

1. Research Needs
   - Microhabitat identification
     - Active location of whales with sonar and radar
     - Location with passive arrays—acoustic monitors
     - Correlate tracking with behaviors
     - Tagging
     - Distribution, habitat usage, behavior on a localized level, fine scale, real time
     - Tease out singers and calf distribution as they may be more vulnerable to ship strikes

2. Distance efficacy—discuss ways of addressing distance shore to boat, shore to whale, boat to whale

3. Distribute to Whale Watching Vessels: Guides, brochures, posters, sticker

C. 3rd Level Priority

1. Vessel traffic method for centralized communication on whale locations for shipping or ferry industries
   This was intended as a "vessel traffic controller" person who would have real-time access to whale locations from various sources (acoustic monitoring, sonar, radar, shore-based observers) and could advise vessels on safe operation routes. It's not a model.

2. Train Naturalists

II. Session Comments

A. What's Working In Hawaii Now?

1. Summary Points

The following items represent a summary and consolidation of the ideas presented by the full group.

a. Good education of operators, staff, crew about responsible interaction
b. Pre-season meetings, operator to operator communication work well
c. Communication between agencies, operators, and organizations is good
d. Public Awareness (school- and passenger-based education and awareness) is working well

e. Commercial Operators are very concerned about whale well-being and have been doing a good job in self regulating
f. Ocean Users Guide
g. Increase in whale population and a low ratio of collisions in more recent years indicates that efforts are working. (See Group 2 Appendix of Comments for more discussion on this issue).

2. Complete List of Comments
   - Company education for crews
   - Education on responsible whale watching activity
   - What is number of whale interactions that would be appropriate? (Interaction means collisions. The effects to whales from vessel collisions can range from no injury to serious injury and mortality, which is not yet defined for our purposes. With respect to the number of whales that die as a result of collisions, those will contribute to overall anthropogenic mortality but may not be the primary cause. We should be aware of this context in monitoring/determining whale/vessel collisions and collecting that data.)
   - Communication between research, educators, and industry
   - Annual ocean users meeting to discuss issues
   - Communication and education should be major goal
   - Have greater sense of awareness of whales and avoidance
   - Need to define issue of whessels, What is status of current problem? What is the main concern? - incidental collisions or fatalities or other, before the working group can make an appropriate recommendations
   - Need to continue inter-agency coordination (state, federal, local)
   - Pre-season meetings with education, enforcement, and operations—could be expanded
   - Operator communication on the water via radio is very good and should be encouraged further
   - Local numbers to call was helpful
   - Booklet discussing new regulations and other issues
   - Education: dissemination of information could be further improved
   - Similar concerns about well being of whales among operators and public
   - Since 1980s coordination has been done well
   - Need outreach to children to address and expand on conservation issues
   - Kayaker's safety need to be addressed
   - Level of communication good between researchers and whale watching companies
   - Shouldn't penalize those reporting incidents: need a way to provide amnesty or other method where operators can report with immunity from prosecution (See Group 2 Appendix of Comments for more feedback)
   - Encourage good seamanship to keep watch
   - Operators wouldn't want to harm whales
   - Ongoing communication and education include cruise ships in outreach as well as school children
   - Outreach programs such as Kid Science that reach school children about conservation are fostering awareness of issues related to whales among future adults.
   - Education and outreach on whales—status, biology, etc
   - How not to disturb them when they are out there
   - Want to continue to protect resources
   - 99% of boating industry aware of laws—tourists, operators—sensitive to situ-

ation

- Ocean operators are good at self policing
- There is good communication between enforcement and industry
- The Industry created and adopted the approach guidelines of 100 yds in 1978
- Hawaii has a low strike rate, yet increasing number of animals. The maritime industry believes that this speaks volumes about their responsible operating within whale rich waters and may also suggest that humpback whales have some ability to learn how to avoid being struck by vessels.
- Campaign for speed guidelines and education –continue to further develop this. Also research vessel types and maneuverability to determine appropriate speed for a specific type of vessel. This campaign should take into consideration size and type of vessel. One size answer will not fit all users. (Please see Group 2 Appendix of Comments for more discussion on this issue).
- Coordinate handbooks between sanctuaries—watchable wildlife program
- Self-regulation by industry to notify other vessels
- Rough estimate: Between 1995-2003, about 300 new whales (representing a 7% growth rate per year) and during that time there were 2 deaths, and 18 collisions—this would be an indicator that the industry is doing a good job
- Define issue of conference—what is our focus?
- Could expand pre-season meetings to bring in other areas of expertise to discuss whale behavior, techniques for avoiding, etc. It would be good to have some meetings with researchers and operators without enforcement presence to educate the mariners on the latest research being done.
- Public awareness is working—school programs, whale count, conservation awareness
- Communication between companies/boaters on location—know where everyone is
- Education of all ocean users should be on going
- Self-regulation working w/ tour operators (appreciated by enforcement)
- Local research efforts excellent and have good cooperation with users
- Population is increasing so doing something right—may need to revisit law regulation on the 100-yard approach. This issue was one of the two issues that the maritime community would like to see modified.
- Education and public awareness and outreach are good, should be continued and expanded
- Ship strikes—what constitutes proper respect for interaction?
- Self-regulation—education programs for children, users, general public
- "Unregulated" industry area to focus—kayaks, unregistered crafts, etc. their safety needs to be addressed
- New water users need education
- Increasing whale population and density
- "20 is plenty, 15 or less is best" speed rule—increase/expand PWF program.
- Opportunities to work with other sanctuary programs in CA and elsewhere to partner
- Guidelines available elsewhere—i.e. personal watercraft

B. What Holds Promise in Mitigating or Avoiding Collisions in the Future?

1. Summary Points

The following bulleted items represent a summary and consolidation of the ideas presented by the full group.

a. A predictability model which includes baseline data
b. More education and outreach on vulnerability of whales (calves, behaviors)
c. Research/Management/information needs:
   - How to deal with higher densities of whales
   - Info on "friendly" behaviors – "muggings"
   - Info on current real time whale locations
   - ID vessel carrying capacity
   - Good vessel design (See Group 2 Appendix for Comments on this issue)
   - Vessel type and maneuverability as they relate to appropriate speeds around whales
d. Education needs:
   - Continue boater education
   - Supply operators with biology info
   - Host info between researchers and operators at harbors
   - Expand speed campaign (See Group 2 Appendix of Comments for more on this issue)
e. Other solutions:
   - Pursue shore-based whale watching
   - Opportunities for agencies to work collaboratively with other jurisdictions

2. Complete List of Comments

- Strengthen ability to avoid/mitigate collisions
- Predictability model, baseline data
- Boater education/information on vessel strikes, vulnerability of calves, expanded behaviors, etc
- Improve and clarify rules for:
  - Vessels approaching to observe whales
  - Transiting boats
- Research/data needs:
- Define incidental contact vs. collision
- Formalized, structured reporting system that includes vessel speed and position without fear of reprisal.
- Information on "friendly behavior" or "mugging" of whales—anecdotal info
- Education needs:
- Research info shared with captains, operators on behavior, biology
- Pre-season meeting—target captains, locate the meeting at the harbor, include behavior and research
- Speed—need to include/expand PWF program. A question as to the correct speed to recommend was noted. The suggested speed based on data indicates speeds less than 13 knots. (See Group 2 Appendix of Comments for more on this issue)
- Increase data needs on whale location—passively and actively (sonar—increasingly feasible)
- Increase research on whale behavior—particularly as population grows (not static issue)

- Anticipate emerging issues (i.e. high speed ferries)
- How crowded can waters be? Are we talking limiting vessel access to these waters? Shore-based programs could be explored.
- Code of ethics for operating should be guidelines (avoid penalties) not codified
- In-registration education on approach guidelines. Utilize DLNR Division of Boating and Ocean Recreation to include informational materials with state vessel registrations and renewals.
- Identify goal of whessel issue: what are we trying to accomplish? We must understand this before making recommendations.
- Commercial operators should have database in place—numbers available
- What is projection for vessel/whale encounters—create predictability model to measure success
- Where appropriate, examine issues and solutions on east coast understanding that the right whale situation is totally different from the Hawaiian humpback.
- Expand education to kayakers
- Info in strikes and vulnerability on boater education program
- Tease out what is and isn't acceptable relevant to approaches and also to better understand whale behavior. Incorporate concepts of prudent seamanship.
- Ensure vessels in transit continue to have responsibility – and understand responsibility
- Find common guidelines to use as standard
- ID what is preventable
- Research needed on increased trend of whale "muggings"
- Info to boaters on vessel specific reactions
- Continuing education needed for both naturalists as well as captains on bio and behavior in order to educate decision makers
- Would like to see seminars hosted at harbors to make it easier to participate—include research info
- Research needs on good vessel design that may have application to Hawaii
- Formalize anonymous reporting mechanism—speed, location, etc.
- Brochures could cross-reference information
- Expand speed campaign—issue needs other options—routing around or speed reduction—when to use each option. 15 knots may be too fast, some participants stated that data supports less than 13 knots. (Please see Group 2 Appendix of Comments for more on this issue).
- Passively locating whales with sonars should be pursued
- Continue research on behaviors and travel trends
- Be flexible to changes in population and technology and regulations
- Continue brainstorming
- Need to address issue of "unlimited growth": Comments included that if we assume unlimited growth in vessel numbers the collision issue will continually worsen, others stated that unlimited growth of vessels is not possible in Hawaii, it is already restricted by lack of new harbor facilities. It is not likely that new facilities will be built in the future.
- Enhance opportunity for shore-based watching
- Educate boats in-transit on biology and behavior

C. How to Address Unintentional Encounters

(This would mean vessels in transit, not actively whale watching (intentional encounters). I specify 'actively' whale watching because a whale watching vessel in transit, with no intent to approach whales would fall into this category.)

1. Summary Points

The following items represent a summary and consolidation of the ideas presented by the full group.

a. Need for common definition on:
   - Incidental contact: An operator proposed the following: Operator is quite sure no mortal harm was done to whale
   - Collisions: An operator proposed the following: operator believes that Whale could be injured, possibly severely
   - Transiting vs. approaching

b. Formalize current policy of not prosecuting captains those self-report incidents.

c. Definitions will clarify reporting, improve trust, and give better data

d. Formalize reporting mechanism?

e. 100 yd rule: The concern expressed was that the current law is unenforceable without doing massive harm to the entire maritime community. There must be some modifying language that protects the responsible operator who finds himself or herself inadvertently within the 100-yard circle.

f. Enforcement:
   - Do we have sufficient?
   - Local?

g. Acknowledge difficulty in determining distances on the water (determination from shore, boat, etc) and perhaps hold on the water training/practice sessions on this topic.

2. Complete List of Comments
   - Unintentional needs a definition as nearly all encounters are
   - Enforcement—sufficient?
   - Need local relationship/contact—improve quality
   - Trust issues—what are they?
   - "Laws penalize stewards"
   - Need to clarify definitions
   - Incidental contact: An operator proposed the following: Operator is quite sure no mortal harm was done to whale
   - Collisions: An operator proposed the following: Operator believes that Whale could be injured, possibly severely
   - Will raise trust level clarity and enforcement
   - More clear direction, behavior, guidelines (Glacier Bay regulations may serve as a guideline, the idea was not to reinvent the wheel). One member noted that those same regulations that cover a small local Humpback population may not be appropriate for the large number we have in these waters.
     - Intent
     - Actions
   - Solutions must be embraced by industry—should be Code of Ethics—shouldn't be penalized for choices made
   - Restricted areas for vessel traffic

- Enforcement—how to better use?
- Look at issues as one of collective stewardship
- Get # out to more people
- Educate and disseminate info on non-penalties
- Create clear directions for operators on how to maneuver in the event of an unintentional close approach
- Distinguish intentional close approaches by presence of vessel changes in course and speed that decrease whale-vessel separation.
- Operators who could demonstrate that they knew and followed these clear directions on how to maneuver after an un-intentional close approach would not need to be fearful of accusation of misconduct or illegal activity.
- Concern about clarifying distance from shore w/ enforcement and reporting and ability to estimate distance

III. Appendix: Group #2 Comments on Report

The following comments were received as additional feedback to the report that was not entirely included in the final report. The comments are organized first in response to Terry O'Halloran's initial draft of suggested revisions, and then second, any other comments to the draft.

Mr. O'Halloran's draft was the first response sent to the working group so most of the subsequent responses worked off of Mr. O'Halloran's draft. In Mr. O'Halloran's draft, he proposed language change to state that "whale collisions are not a serious threat to Hawaii", and to clarifications regarding the PWF speed program recommendations. Because there was discussion on proposed language change that was not in complete agreement, the recommendations were not added to the final report. However, the comments here contain significant detail and information that will be helpful to the SAC Working Group in their development of recommendations to the SAC.

Comment responses begin with Terry O'Halloran's response to David Laist. Then David Laist's initial response to Terry O'Halloran's comments. Then Gene Nitta's, Chris Gabriele's and Greg Kaufman's comments which go to both Terry and David's comments.

Comments Responding to Terry O'Halloran's Draft

1. Terry O'Halloran response to David Laist's comments on his Draft:

Hi David,

Thanks for your thoughtful response. For clarification, I think you may have left out the word "not" in your first sentence, second paragraph...vessel collisions are at a scale that will "not" significantly effect the ongoing increase in the abundance of humpback whales.

First, I think we are on the same page and I agree that whessel collisions in Hawaii are a legitimate issue that bears our close attention and proactive stewardship. Essentially that's why Naomi wanted this workshop, so that we can stay ahead of the curve and find appropriate ways to minimize future collisions as the humpback population grows. My suggestion intended only to communicate that "it is important to recognize that our present status in Hawaii is not critical...as contrasted by the serious struggle for survival by the

northern right whales." Perhaps we could put this as a bullet in the "Detailed Notes" under "what is working well in Hawaii."

Your comment about identifying and encouraging measures to minimize risks of hitting whales would be appropriate in the detailed notes section of "Things that would be helpful in the future."

Vessel design, size, and maneuverability needs more research before we can take a "one size fits all" speed guideline for Hawaii. You point out that larger vessels >80M cause the most serious and lethal collisions and that for those types of injury speeds of 13k or less is indicated to reduce them. The vast majority of boats on Hawaiian waters are much less than 80M, virtually all vessels in our passenger carrying group category (excepting cruise ships) are less and more maneuverable than the larger vessels - hence the need for more information. Recreational vessels, which are even smaller, typically transit to/from the harbor or launch ramp at higher speeds yet are extremely maneuverable and able to avoid collisions at those speeds. Bottom line, we hope to find practical ways to minimize all collisions in our waters, even ones that do not result in serious or fatal injury.

Aloha,
Terry

2. David Laist's response to Terry O'Halloran's proposed changes to the Draft Report.

Terry:

Thanks for your attachments. In general I agree with most of your suggested changes. However there is on point that gives me some concern. It includes the addition saying that collisions are not a serious issue in Hawaii as evidenced by the increased whale population...

As I mentioned at the meeting, vessel collisions are at a scale that will significantly effect the ongoing increase in the abundance of humpback whales. However, I don't believe this means we should not consider it a legitimate and serious issue. No one wants to hit whales, yet with an increasing whale population that risk can only increase. As good stewards of the environment, there therefore seems to me to be a need to ensure that all reasonable steps are taken to hold collisions to the lowest number possible and to assure there needs is a clear understanding by all who operate vessels in Hawaiian waters of the appropriate measures that would minimize that risk in a way that properly balances the needs of the whales and the vessel operators. I am concerned your change conveys the sense that the working group concluded that doing so is not a serious and legitimate concern.

I would therefore not support the referenced addition to the bullet, But instead suggest we add a bullet under the "things that would be helpful for the future" list that notes that given the increasing number of whales in Hawaiian waters, there is a need to better identify and encourage the measures that vessel operators can and should take (whether we call them a code of conduct or measures that would constitute proper seamanship in whale waters) to minimize the risks of hitting whales.

Also, with regard to the bullet "Speed - the need to include/expand the PWF pro-

gram…", that program recommends using speeds of not more than 15 knots in the sanctuary, but the data show that 15 knots is not slow enough to reduce collision risks. Thus the PWF model needs to be revised (rather than include/expand) to (1) note that speeds of 13 knots or less appear necessary to reduce collision risks and (2) provide advice on when and where such speeds would be appropriate.

Hope these thoughts help.

Cheers,

David W. Laist

3. Gene Nitta's comments to both David and Terry.

Thank you for the opportunity to review the draft. My comments are in violet in the text.

In response to Terry and David I have some comments that are sort of the middle ground. First, there is currently no apparent population effect from vessel collisions and the resulting mortality (but there may be). With an increasing population (at least for the Hawaiian wintering population) there may be an increase in collision rates, but it may not be a proportional relationship. We should also be cognizant of demographic processes that feed into carrying capacity and how this might affect the total number of whales and collision rates.

While it would be prudent to be proactive to the extent that we can, it should be recognized that resources may limit, in particular, for the purposes identified during this workshop and that further vetting of the highest priority items should be conducted.

Finally, vessel whale collisions occur outside of sanctuary boundaries (as well in SE Alaska). How will these other potential mortalities be fitted into the modeling and monitoring schemes? How will fisheries takes and entanglements be factored into any model developed?

Gene

4. Chris Gabriele's comments to Terry and David.

Hello all,

I've attached the workshop notes document that includes my comments in the same document that included Gene's comments. My suggested edits are in bright pink. I mainly clarified items that I contributed at the meeting, to ensure that the intended concepts were captured. As a general comment, I am confused about whether and how the bullets regarding a Code of Ethics and the 100 yard approach regulation are relevant to the whale vessel collision issue. Perhaps a few sentences of clarification, by someone who can articulate this link, would be appropriate in the document so that readers of the workshop report will understand it.

Here are a few comments about the ongoing discussion of whether whale-vessel collision is a population level issue. We struggle with this all the time in managing vessel traffic in Glacier Bay. What we have concluded is that whether or not a population level effect can

be demonstrated, there is still an obligation to manage on the individual whale level. From a legal perspective, whether or not whale vessel collisions are delaying or preventing the recovery of humpbacks from their endangered status, Federal agencies are required to minimize 'take'. On the practical level, collision mortalities and injuries are *expensive* in many ways, including the money it takes to respond to them, but also in terms of the negative public perception that would affect commercial operators, sanctuary managers and indeed the concept of a whale sanctuary.
If vessel strikes were to increase to 10 per year, you might still be able to say that the population was not declining because of vessel strikes, but issue would still be spotlighted in a very uncomfortable way for all concerned parties. The bottom line is that whale vessel collision is an issue that will require increased attention especially because the numbers of whale numbers are increasing. Taking proactive steps now to minimize the risk of collisions may not make you heroes, and failing to take them will leave you with a lot of explaining to do. Any education programs that highlight the issue of vessel speed should be based on the best available information, dictating speeds below 14 knots.

The workshop was a good start in raising important issues, but there seems to be a lot more work to be done on understanding the details. Thanks for the opportunity to participate.

Chris
PS. This is my first day back in the office after traveling back from Hawaii. There are humpbacks (and killer whales and a large vessel) audible on the hydrophone as I am typing. They'll be headed back to Hawaii soon.....and I hope to do the same!

Christine Gabriele, Wildlife Biologist

5. Greg Kaufman's response to Terry and David comments.

With regard to comments on the Whalewatching Code/Model of 20 is plenty when transiting Hawaiian waters, and 15 knots or less is best while in Sanctuary/whale waters: we only referred to some of the 'highlights' of this campaign, and the full code was never presented to the group for consideration (e.g. conduct/speed/maneuvering when encountering whales). I would be happy to provide the complete Code if the Group desires. However, I think this would best be considered by SAC after they review all the comments from the Workshop, and undertake to recommend actions to the co-Managers.

I concur with Terry's caution on trying to apply a "one size" or "one speed" fits all to each region where whale/vessel collisions are an issue. Vessel size, design, speed and sea conditions vary greatly by region. The Hawaiian waters and vessel traffic might best be compared to the Canary Islands or the tropical waters of Australia verses the North Atlantic or Pacific Northwest. In the Canary Islands, for example, deadly collisions with whales are found to occur in the 18-20 knot range. In addition, the type of whale/dolphin and their surfacing behavior can skew collision data (e.g., right whales free ascend, while humpbacks undertake controlled ascents).

Beyond this, a code (or even a regulation) is destined to fail if it cannot garner the support of the ocean using community. When we were crafting our Code for Hawaiian waters, we had numerous discussions with commercial and recreational waters users. There was a wide acceptance of the 20 and 15-knot speed 'limits'. Ocean users felt speeds of under

15 knots would be detrimental to their businesses and taxing on the environment because their vessels would not be operating at efficient levels. These speed limits give us an accepted starting point from which to monitor. Based on the results (more or less collisions/strikes) we can advise ocean users to adjust speed accordingly. This notion of speed limits, however, must come as a voluntary action by ocean users, and not a mandate or sanctuary regulation, to have any chance of being accepted in Hawaii.

I agree with Gene Nitta's points regarding vessel whale collisions and fisheries takes and entanglements occur outside of sanctuary boundaries and the need to include these collisions/takes into the modeling and monitoring schemes.

a hui hou - Greg Kaufman

II. Other Comments to the Report

1. Jim Coon's Comments.

One of the concerns that the non-government maritime community has, is that the number of government participants was so great that many of the comments generated reflect the view of the regulator and not the view of the mariner. It would be a shame if this workshop were used to create unreasonable regulations on the water users. This is why it is so important for the SAC to forward a few well thought out recommendations on to Naomi and the DC decision makers. It was clear that the water users had some very specific concerns about approach and reporting issues. At the end of the day, these still must be addressed. We should all be happy that we have the "problem" of so many whales and not alienate our strong local boating community support. I have added some notes in blue to your attachment.

Regarding the speed issue: this issue must be handled very wisely to ensure that it addresses various vessels and their operation needs. Many of the trailer boats are relatively small vessels that can quickly (above 20 knots) transit out to various fishing grounds or harbors. These vessels are very maneuverable and if a whale/vessel strike occurred, it could be argued that it would be more damaging to the small vessel than the whale. As was pointed out the majority of mortal collisions occurred from vessels that are over 80 meters. These large ships are a completely different class of vessels than the trailer boats. Finally, when support for the sanctuary was being sought we consistently rebutted the argument that the sanctuary was just going to create more problems for the local boater.

Regarding this comment on speed: "Expand speed campaign—issue needs other options—routing around or speed reduction—when to use each option. 15 knots may be too fast, some participants stated that data supports less than 13 knots.": There are two issues here: First the speed issue and second the closing off specific waters to navigation. Both of these issues very well may cost us the support for the sanctuary and must be looked at in the context of how it is impacting the recovery of the Hawaiian humpback population. We must tread gently here.

Regarding research needed on increased trend of whale "muggings": Again it could be argued that responsible operation of vessels coupled with an intelligent whale could be an asset and not a liability. Currently there is no law against whales approaching

vessels.

Regarding restricted areas for vessel traffic: We better be quite convinced that we have a whale recovery threat here before we head down this road. This type of radical move on the part of the Fed could cause a serious and almost irreparable breach of trust with now strongly supportive local boating community. I believe that long term it could really hurt the sanctuary.

Breakout Group #3: Recreational Boat and Ocean User Issues

I. Final Report-Out Recommendations

A. Summary

- Clear consensus that effective, targeted education and outreach to recreational vessel operators is the priority action and preferred strategy to address the reducing collisions (and other interactions) of recreational boats and whales.

- Excellent outreach materials to implement this strategy have been developed ("Handbook for Ocean Users", for example), and an implementation should be built on these existing resources.

B. Priorities

1. Collect and analyze available data and information to clarify the scope and magnitude of the threat, if one exists, of collisions between recreational vessels and whales. If insufficient data exists, develop and implement a research program to answer this question.

2. Continue to (a) develop lower-cost education and outreach initiatives, as described above, and (b) enhance partnerships to share resources for recreational vessel outreach and education-related initiatives until agreement regarding the scope and magnitude of threat has been reached. Future actions can be more appropriately guided by a better understanding of the scope and magnitude of the threats.

II. Key Areas of Focus

A. Outreach products:

- Should be developed to supplement the "Handbook" that are more "on the water" friendly…placards, informational stickers, and similar documents focused on providing succinct, understandable information about "wessels"…
- All documents produced should be translated and available in multiple languages.
- Examine similar initiatives in other sanctuaries to seek out models for types of documents to be developed.
- Some measure of effectiveness of outreach tools should be designed and implemented…must be sure they are transmitting the information effectively.

B. Targeted Marketing Strategy:

- Key target audiences – local boat operators, visitors and newcomers, small boat fishermen, "paddlers" (canoe, kayak, etc.) and commercial operators who rent vessels
- Focused on getting the right information to the right folks...
- Some random ideas for consideration:
  ~ expand/better target Ocean User Workshops to key audiences
  ~ work with recreational boating industry representatives (ex, West Marine) to disseminate information
  ~ broadcasts on "Radio Free Sanctuary" during whale season...tie into broadcasts of others (weather, CG, NMFS, commercial?) to get the message out
  ~ Develop programming for local "visitor channels" on local TV and at hotels
  ~ Strategically located signage (such as at boat ramps) should be developed.
- Measurement of effectiveness of marketing strategy also important.

C. Reporting:
- Need to get the recreational boater involved in reporting incidents observed on the water
- "800" (NMFS or other) number or some other vehicle should be used to collect information
- Need to work with partners to get handle on collection and management of vessel collision data and information
- Must find a way to get information back to those who submit to show that the information is not going into a "black hole"
- Another candidate for exploring industry partnerships...sponsorships, incentives, etc.)

D. Research:
- Development of low-tech low-cost "technology" and vessel operation protocols to reduce probability of collisions between whales and recreational vessels.
- Get a better handle on the threat posed to whales from collisions with recreational vessels.

III. Breakout Group #3 Session Notes:

Things to capture in this meeting as it relates to recreational vessels:

A. What we do well now:

- What we do well now, by having a sanctuary, we're bring attention to the problem and addressing the "whessel" issue.
- NMFS and sanctuary try to educate the public by having classes for ocean users; before the whale season—what they can and cannot do.
- Industry, as a whole, has a communication system on whale traffic (e.g. CB and VHF). Recreational boaters or a guy going fishing can get onto the channel and see what the whale traffic is.
- Most of the recreational boaters do listen into channel 14 CB.
- The research boats use 40 CB and 16 VHF (these are same channels used by whale watch boats in Maui).
- Jet skis have been kept to very small areas. Can't hear them (jet skis) coming. In Maui, they are precluded during a specific period of time.
- There is mandatory education for jet ski operators.

- Seeing increase in population of whales, the laws are working.
- Recreational boaters have been meeting prior to the whale season with commercial operators.
- Commercial operators have followed the guidelines in a commendable fashion as evidenced by the increase in the numbers of whales. And the commercial operators don't hesitate to communicate with recreational vessels when they are out of line.
- All recreational boaters are required to have VHF radio or EPIRB by January 1, 2004. VHF will improve communication on the water.
- Public education and outreach (e.g. Whale counts—the dissemination of that information goes into the community like wild fire.)
- Dissemination of whale information at DOBAR offices (e.g. Kauai)
- Curriculum development should be integrated into other educational things as it relates to whales and collisions.
- What are the problem areas—is it tourism or recreational—as it relates to collisions.
- A lot of visual detection of the animals because everyone is looking out for them.
- Signage at every boat launch ramp on whale approach rules/education
- Exploring the use of weather kiosks and other education technology.

B. Improvements needed:

- Should be using television visitor channel to educate visitors.
- Interactive computers at the ramps with links to weather, whale info, boating rules, etc.
- Problem with recreational kayakers approaching the whales with no education about the laws or how to alert the whale that they are in the area.
- Target audiences: local residents, visitors/malahinis, small boat fishermen, vessel/kayak rental operators, paddlers and windsurfers.
- For management and regulation, consider the native Hawaiian practices.
- Utilize more the print media and public service announcements that educate and promote whale watching simultaneously.
- Expand on what already exists—short-staffed Sanctuary—pump it up and increase what is already being done.
- More inter-agency coordination and regular meetings.
- Need to measure effectiveness of the proposed recommendations.
- There is a 24-hour hotline, but it has to be better marketed to let people know it exists.
- Utilizing sound and practical low cost ways to alert whales of vessel/kayak is in the area. Possible research project.
- Recognize differences between local operators and visitors
- Specify for information for specific users
- Kayakers, recreational and commercial, have lack of information and have great potential for becoming injured by and for disturbing whales.
- Signage at boat ramps
- Utilization of commercial operators' communication system by recreational boaters.
- Public education and outreach
- Curriculum development in the school system
- Mandatory training and education.

C. Need for information:

- Vessel interaction (small craft) at greater than 14 knots—need data.
- Gas consumption/efficiency varies with speed.
- Concern about possible speed limits—so what steps can we take to be a responsible boater?
- Focus on education and outreach.
- Stay away from regulating speed.
- Not enough information/data/evidence in Hawaii to be enacting a law.
- Explore ways to report "whessels" anonymously.
- Think of paddlers and not just kayakers.
- Remember promise made during sanctuary designation process that NMS would not adversely impact fishermen.
- Create incentive to report "whessels".
- There is a need for measurable goals of improvement activities.
- Need for measuring effectiveness of actions.
- Whale/kayak/paddler/windsurfer interactions need more attention and collaborative efforts between those ocean user, commercial operators and agencies.
- There is no centralized database on "whessels" or one that is readily available.
- The "whessel" database should be improved and made more available
- Possible sanctuary boundary expansion
- Need to clarify the regulations and why they exist
- Need to educate that whales are inside and outside the sanctuary boundary.

D. Focus on education and target audiences:

- Messages should be consistent regardless of the audience.
- Look at methods of dissemination and their effectiveness.
- Summary of regulations.
- Information disseminated depends on what media you are using.
- Target local folks.
- Also consider safety of humans utilizing small vessels and the impact of the whales on the humans.
- Educational information should be multi-lingual.
- Kinds and appeal of products (cards, placards; handy and easy to read).
- Work with boating and ocean recreation users or industries, e.g., kite surfing, windsurfing, to determine what kind of products would work best for their users.
- Determine what has already been developed so no one reinvents the wheel. Perhaps determine other avenues not yet utilized, e.g., send out with vessel registration information.
- Indigenous Hawaiian use issues need to be fleshed out.
- Depending on the target market will determine what information is provided.
- Provide incentives, e.g., partnerships with retailers to give special discounts on merchandise while disseminating information.
- Establish a distribution center for education materials.
- Another possible vehicle, putting out a broadcast during whale season about notices to mariners regarding whale location, behaviors—NOAA weather—U.S.C.G. notice to mariners, NMFS
- Dedicate frequency specific to this topic.
- Look at similar outreach educational materials in other sanctuaries.
- Examine/ expand Ocean Users workshop audiences, who isn't being reached?

- Need one hotline phone number for reporting stranding, entanglements, “whessels”, etc.
- Provide incentives to boaster that may aid in data collection
- There are lots of available materials but needs to be marketed more effectively.
- Involve agencies involved in public safety.
- “Whessels” need to be reported as soon as possible
- Information from agencies needs to be shared with public. It may encourage public to report if info doesn’t seem to go into a black hole.

Participant List of Working Groups

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Large commercial vessels

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Joylynn Oliviera- Notetaker
Claire Cappelle/Cindy Hylkema - Notetaker

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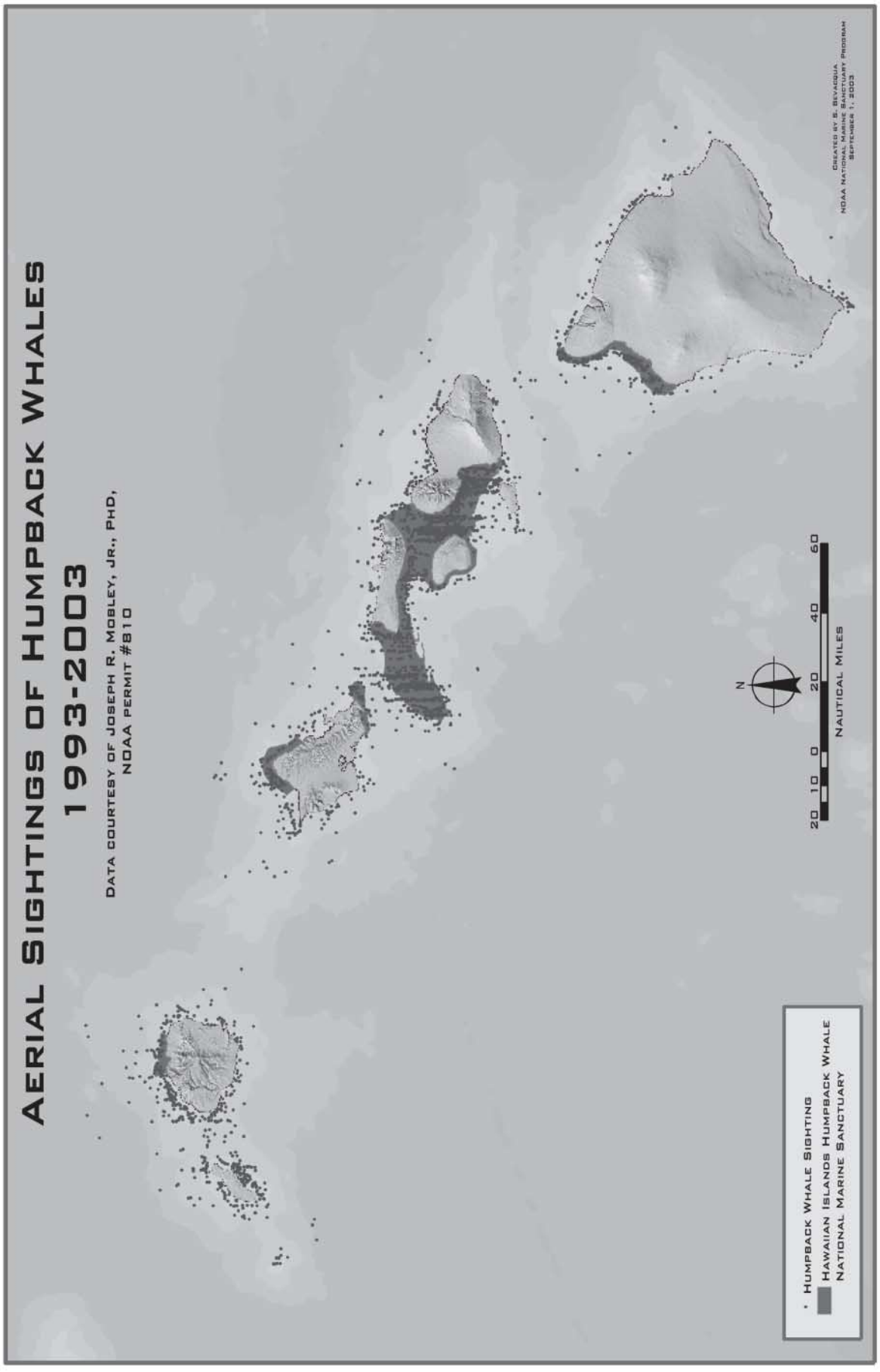
Malloy, Sarah
Ogata-Deal, Ann
Poirier, Dick
Reed, Jennifer
She, Carol
Tamaye, Brooks
Thompson, Steven
Tyndzik, Vaughan
Vanderlaan, Greg
Walters, Jeffrey S., PHD
Whalen, Mike

Brad Barr - Facilitator
Carol She - Rapporter
Jean Souza - Notetaker
Pearlyn Fukuba- Notetaker


AERIAL SIGHTINGS OF HUMPBACK WHALES
1993-2003
DATA COURTESY OF JOSEPH R. MOBLEY, JR., PHD,
NOAA PERMIT #810
CREATED BY S. BEVACQUA
NOAA NATIONAL MARINE SANCTUARY PROGRAM
SEPTEMBER 1, 2003
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NAUTICAL MILES
HUMPBACK WHALE SIGHTING
HAWAIIAN ISLANDS HUMPBACK WHALE
NATIONAL MARINE SANCTUARY